

AMENDMENT TO THE CLAIMS

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20. (currently amended) An apparatus for adaptively generating an output responsive to a sensed position signal, a desired position signal and at least one of a torque and an inertia ~~The apparatus of Claim 19,~~ wherein the apparatus further comprises a controller circuit that has a controller gain that is adapted in a fixed range as a function of adaptive parameter data.

21. (previously presented) The apparatus of Claim 20 further comprising:  
an adaptive system generating the adaptive parameter data according to an update equation.

22. (previously presented) The apparatus of Claim 21 wherein the adaptive system generates the adaptive parameter data based on both the torque and the inertia.
23. (previously presented) The apparatus of Claim 20 wherein the controller circuit is a discrete controller.
24. (previously presented) The apparatus of Claim 23 further comprising an actuator, and wherein the output comprises a controlled electric current coupled to the actuator.
25. (previously presented) The apparatus of Claim 24 wherein the controlled electric current is controlled by pulse width modulation.
26. (previously presented) The apparatus of Claim 24 wherein the controller circuit further comprises a digital-to-analog converter providing the controlled electric current.
27. (previously presented) The apparatus of Claim 24 wherein the sensed position signal is derived from a read/write head.
28. (currently amended) An apparatus comprising:  
adaptive parameter data based on at least one of a torque and an inertia; and  
a controller circuit for receiving a sensed position signal and adapted to receive reference data indicating a desired position, for adaptively generating an output which is based on the adaptive parameter data, the controller circuit providing a controller gain that is adapted in a fixed range as a function of adaptive parameter data.
29. (previously presented) The apparatus of Claim 28 wherein the controller circuit comprises first and second controllers that are stable.
30. (previously presented) The apparatus of Claim 29 wherein the first and second controllers use an error model.

31. (previously presented) The apparatus of Claim 28 wherein the sensed position signal is sensed by a read/write head.

32. (currently amended) A method comprising the ~~step~~ steps of adaptively generating an output responsive to a sensed position signal, a desired position signal and at least one of a torque and an inertia and providing a controller gain that is adapted in a fixed range as a function of adaptive parameter data.

33. (previously presented) The method of Claim 32 wherein the output is controlled based on adaptive parameter data.

34. (previously presented) The method of Claim 33 wherein the adaptive parameter data is updated based on at least one of a torque and an inertia.

35. (previously presented) A method comprising the step of adaptively generating an output responsive to a sensed position signal, a desired position signal and at least one of a torque and an inertia, wherein the output is controlled based on adaptive parameter data that is updated based on at least one of a torque and an inertia, and wherein adaptive parameter data is updated digitally in real time using instructions stored in a computer readable program storage device.

36. (previously presented) The method of Claim 32 wherein the output is coupled to a voice coil motor in a disc drive.